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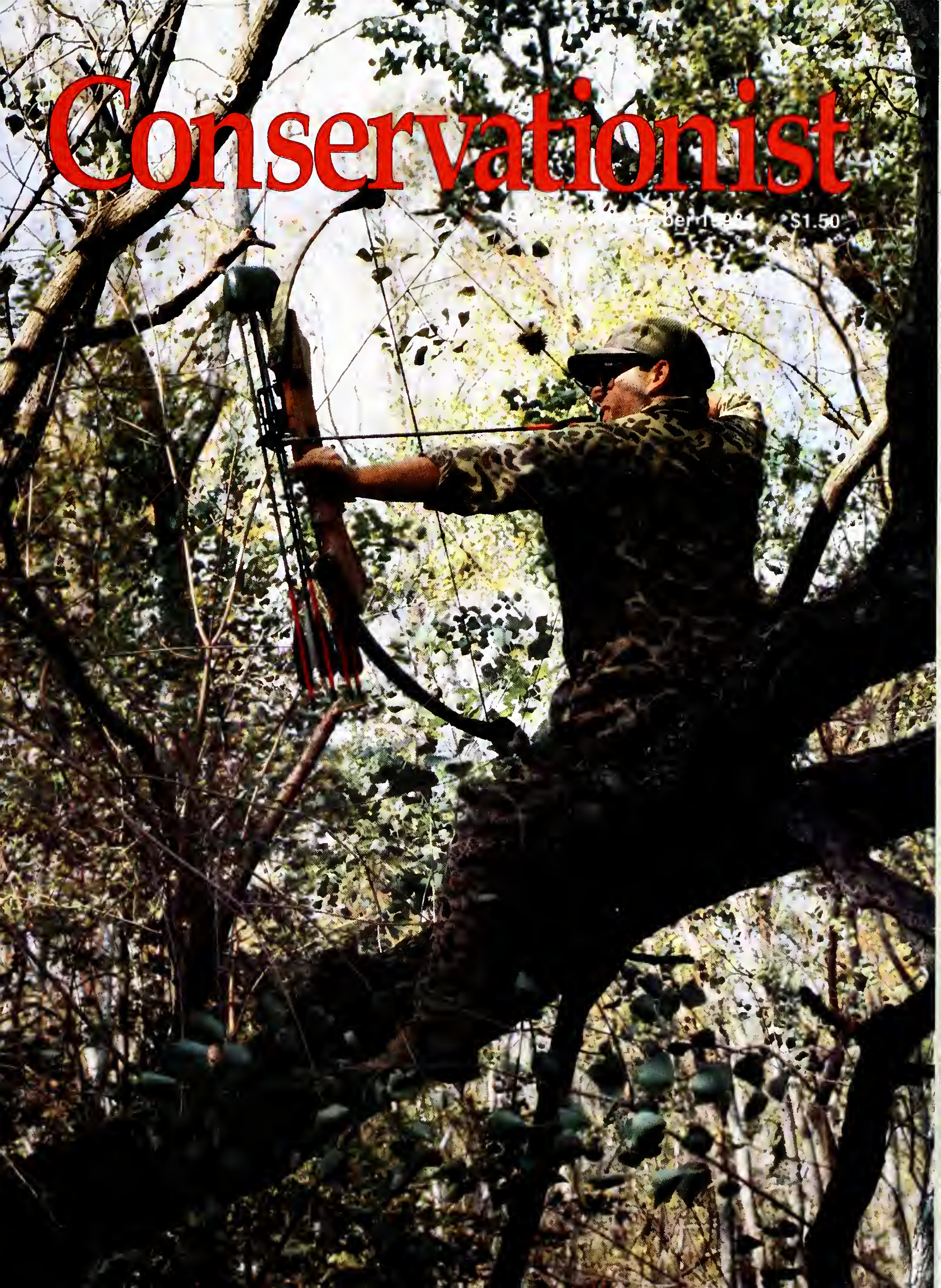

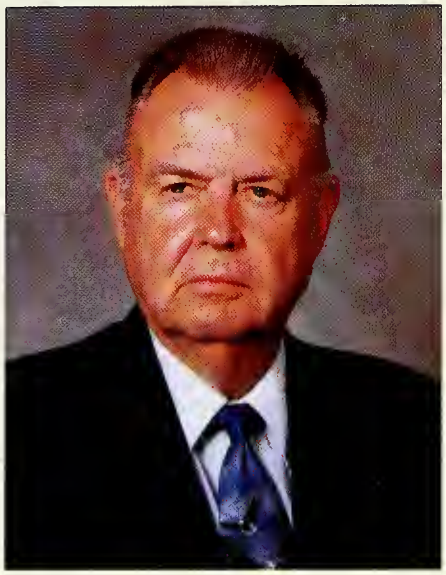
Joe L. Herring, Secretary

These are difficult times for the Department of Wildlife and Fisheries, as they are for all government agencies. Budget constraints and reductions press ever tighter, even as public demand for services soars ever higher. The result is, unfortunately, a rising chorus of negative, defeatist attitudes.

It is my conviction that we should counter this negative thinking and "Accentuate the Positive," as the song goes.

This department has much to be proud of, both in our past performance and in our present operations. Our department has traditionally held a position of national leadership in wildlife management practices and innovative techniques. We were one of the states instrumental in the development of the tranquilizer gun for safe and humane capture, examination and/or relocation of animals large and small. We helped pioneer the use of the canon net for trapping and relocating turkeys. Our research with the American alligator has earned us international acclaim.

It would serve us well to step back and take a look at some of the many notable achievements of this department, and at the progressive resource management plans currently being implemented.

It is no secret that Louisiana offers a biological diversity unsurpassed by any other state. Many of our own citizens are quite unaware of the true scope of our native plant and animal communities, as well as the varied habitats existent between the cordgrass of the coastal marshes and the conifer-clad mini-mountains of northwestern Louisiana.

It never ceases to amaze me when I hear our citizens rave about the scenic beauty of various other states. Only infrequently do I hear mention of the stunning scenic vistas available in our Kisatchie National Forest. Too many Louisianians are yet unaware of the rugged canyons, rocky ledges, waterfalls and dense flora of the Tunica Hills. Perhaps blinded by close proximity, few of our citizens really recognize the profuse brilliance of our seasonal transfigurations throughout the length and breath of the Mississippi Delta Country. Familiarity has dulled our appreciation for the magnificence of moss-draped cypress standing knee-deep in shaded hardwood swamps.

I, too, enjoy the beauty of the Rockies, the Shenandoah Valley and the Great Plains, but I have yet to find the area that offers greater beauty, greater diversity, or more absolute magnificence than our own Louisiana.

The protection and enhancement of these splendid natural wonders, as well as the richly varied wildlife inhabiting Louisiana lands and waters, is the charge of the Department of Wildlife and Fisheries. In coming issues, we'll look back to some of the more notable achievements of the department, and forward to the positive opportunities of the future.

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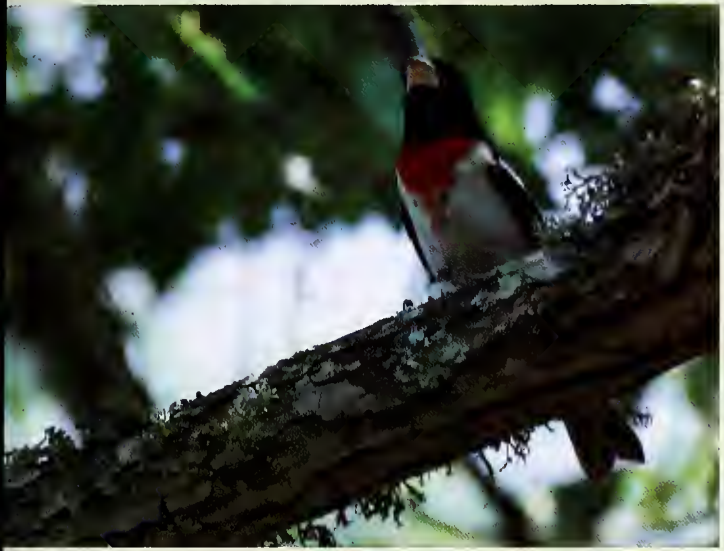
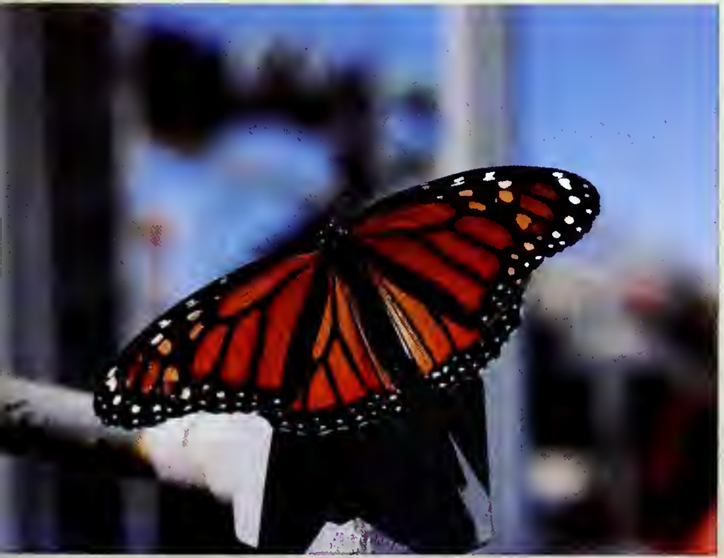




In This Issue

4 **Fallout on Southern Coastal Beaches**
By Charles Frank
Fall birding in the cheniers.

8 **A View from Above**
By Andy Crawford
How aviation aids wildlife and marine biologists.

12 **The Making of a (fisher) Man**
By Larry Bozka
The legacy of a father.

15 **Trans-Gulf Express**
By Prof. Gary Noel Ross
The journey of the monarch butterfly.

18 **1993-94 Hunting Regulations**

20 **Archery on the Increase**
By Carle E. Dunn
An old sport growing in popularity.

24 **Trakking the Rut**
By David Moreland
Successful deer hunting is knowing where to hunt.

29 **Education Corner: Biodiversity**
By Lyle Soniat & Linda Wygoda

31 **Law Lines** *by Capt. Keith Lacaze*
Operation Game Thief

32 **Conservation Notes**
Wildlife and Fisheries news briefs.

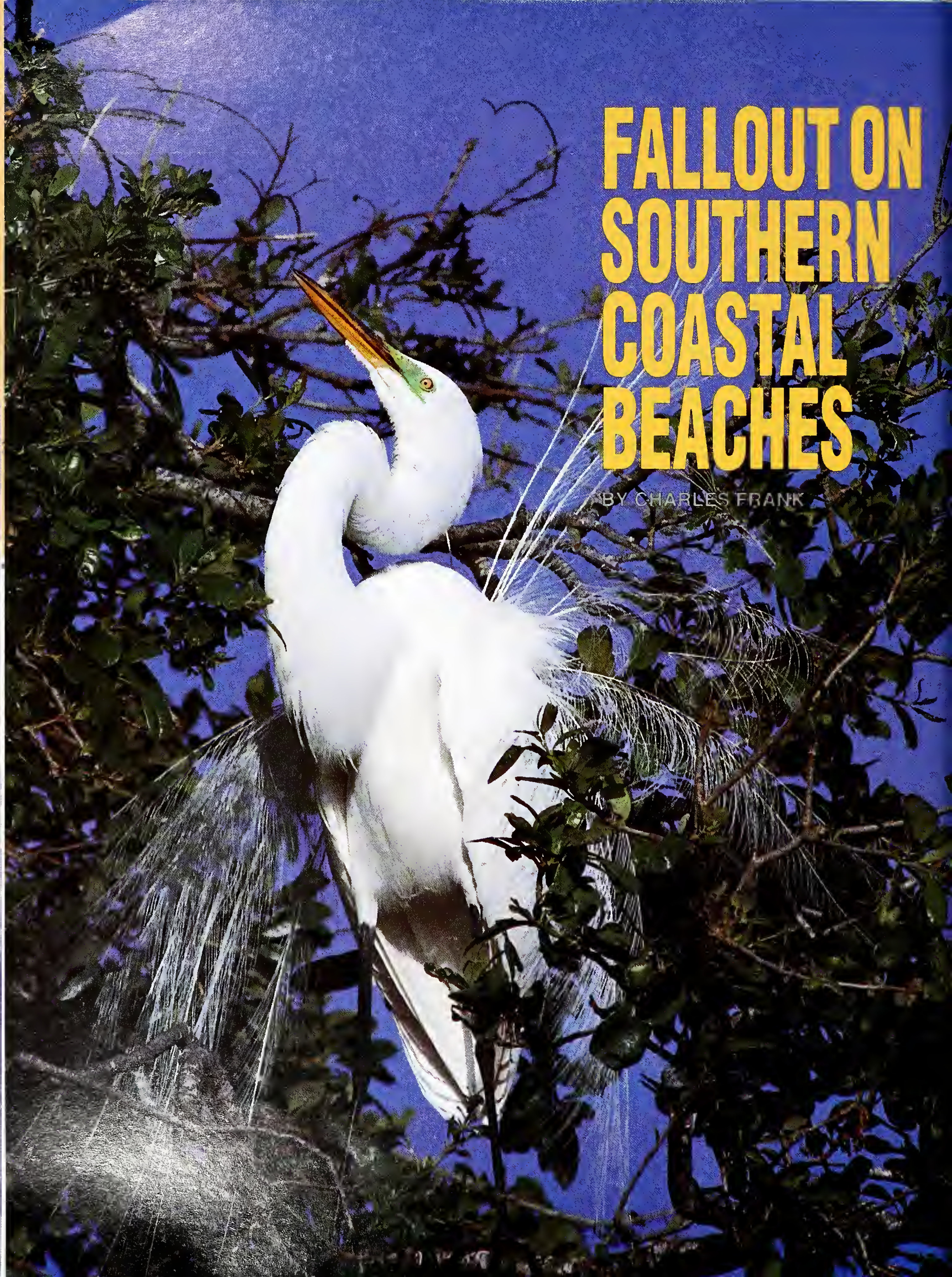
35 **Bayou Kitchen**
By Wayne Miller
Louisiana Shrimp!

Front Cover
LDWF file photo

Back Cover
By Jason Saucier, Jr.

FALLOUT ON SOUTHERN COASTAL BEACHES

BY CHARLES FRANK



One of the extraordinary developments in outdoor activities has been the expanding interest in birding. "Birding" has replaced the old title of "bird watching," although the two terms are used quite interchangeably. There are more birders than golfers. There are more birders than baseball players, for that matter, and the state of Louisiana is the home of a most fortuitous set of circumstances that makes us a mecca to birders all over the world. Pete and Linda Dunn in their book *Feather Quest* come up with some very interesting facts. They state that the number of birders in North America lies somewhere between 20 and 30 million. They also laughingly comment, "This should make the manufacturers of tennis shoes very happy."

Photo by Charles Frank

Opposite page, The American Egret is easily spotted on coastal beaches. Left, Charles Frank loaded up with cameras, binoculars and a spotting scope walked the beaches at Fourchon in search of migrating birds.

The earliest birders in the New World were the Indians. Their lore is filled with allusions to birds. The religions of the Navaho and of the Hopi create a picture of the gods of thunder and of lightning as birds. The dark raptors are portrayed as evil, the song birds the symbol of goodness and of spring. The Indians' eyesight was so keen that they commented to early explorers that white men seemed almost blind. Although the redman left no written record, the diaries of the frontiersmen are frequently found with references to species pointed out by their Indian guides.

More than 700 species of birds reside in North America and Louisiana hosts more than 377 of these: an amazing diversity matched by few, if any, other states.

Bird watchers wait for the nor'westers that visit our coastal cheniers in spring and fall. Dreaded by fishermen and hunters, these are times of excitement to knowledgeable birders. They know that ancient oaks and wave-tossed sandy beaches are about to host the most colorful visitors our shores have ever seen.

Not too many years ago, I was wandering in the live oak grove that still blankets the spine of Grand Isle, watching a Painted Bunting a few steps ahead of me. A soft voice behind me commented, "You should have been here last week for the fallout." This was my introduction to Bobbie Santini, the Grand Isle Birdman, and, through Bobbie, to the wonders of the "fallout."

Fall fronts bring a marked change of scenery. Skies can be leaden, with clouds scudding before the wind. They are a backdrop for a migration of waterfowl that visit Louisiana in numbers that are the envy of our sister states.

There are two major flyways with migration terminals in the delta marsh. Here the birds regroup, spreading out in vast numbers as they rest up for the long flight across the Gulf to their wintering grounds in Mexico, Cuba, and South and Central America. The Central and Mississippi flyways include most of the ducks and geese of North America. A few species that are occasional vagrants wing their way to the Antarctic. This, then, is what the "fallout" at Grand Isle is all about

As summer fades and fall winds turn marsh grasses from deep green to sere, the brackish marsh that borders Fourchon Road is a particularly productive area to explore. The Bird Finders Guide to Southeastern Louisiana, published by the Orleans Audubon Society, offers a wonderful outline of what to expect and the seasons in which each species can be expected. This little pamphlet also contains detailed maps of other birding hotspots.

The proximity to Grand Isle allows a morning at Fourchon and an afternoon in the oak cheniers on the island. This unique trip is the average birder's best shot at "breaking" the hundred species count. The marsh along Fourchon's LA 3090 ends at the beach. Here the birding gets doubly exciting. Driving west along the beach (be very careful to test the sand, it can trap the unwary very quickly), be on the lookout for the rarer gulls and shorebirds that frequent this area. In October, look for American Avocets, Marbled Godwit, Least Sandpiper, Semi-palmated Plover, Black-bellied Plover, Lesser and Greater Yellow-legs, Wilson's and Snowy Plover to name but a few. If the surf isn't up, expect to see these little shorebirds scurrying along the wave's edge. They also frequent the tidal flats created by northers, busily probing the soft mud for tiny crustaceans and worms. Their long slender

Photos by Charles Frank

The variety of migrating birds along Louisiana's coast is unmatched by any other state. The above photo shows an American Avocet, a migrant from the Canadian prairie provinces. At right is the Great Blue Heron, a regular visitor to Grand Isle beaches.

bills have been especially adapted for this task.

Duck hunting is about to start as November approaches. Sportsmen in the field, building blinds, keep wildlife moving and easier to spot.

Ducks and the long-legged waterfowl, herons and egrets, are plentiful in numbers other states only dream of. Mallards and Pintails, Widgeon, Scaup (dos gris), Canvasback and Merganser are among some of the more colorful waterfowl in residence at this time of the autumnal molt.

White Pelicans have come down from the prairie provinces of Canada. Wheeling in great circles on fall thermals, black wing tips disappear as sunlight alternately illuminates and clothes their beauty in shadow. Much larger that the local Brown Pelican, they are regular winter visitors, returning in early spring to nest sites thousands of miles to the north. There are Anhingas and Snowy Egrets, Tricolored Heron (formally called the Louisiana Blue Heron), American and Reddish Egrets, Long-billed Dowitchers and Greater Yellowlegs. Some of these birds have become endemic, nesting in the spring and bonding to this area. Willet, Sanderling and Killdeer vie with Forster's and Gull-billed Terns for your attention.

In the spring, Grand Isle has a look of rejuvenation. Flowers that disappeared as cold winter winds swept the island are fruiting once again. Knurled live oak trees that have weathered the years, moss-laden, are a sanctuary and a nesting site for countless avian species. The trumpeter vines and the mulberry trees are covered in tiny buds and fruits. Everywhere, field and stream whisper to the visitor, taking on a new vibrance with each vagrant breeze. The bright green of new growth and the fragrance of spring fills the air. It is a time of wonder: a time when just being out of doors washes away all cares. Ruby-throated Hummingbirds are finding the blossoms, thin bills thrusting deep into the heart of flowers. The nectar gives them the strength to hover on tiny wings. They are the ephemeral fairies of the woodlot. The warblers and vireos, the oriole and redstart, vie with the grosbeaks and the tanagers to see which can get to each blossom-laden branch first. Watching Blue Grosbeaks, Summer Tanagers, Scarlet Tanagers and Rose-breasted Grosbeaks foraging in the mulberry trees can excite the most jaded appetite. Walking just a hundred yards into the thickets, you can watch Hooded Warblers, Yellow-throats and Black-and-white Warblers, all the while keeping an eye out for the secretive Louisiana Water Thrush scurrying about the forest floor.

These are sights that attract visitors from across the land. Groups of birders with binoculars glued to their eyes (look for the field guides, spotting scopes and cameras dangling) bring smiles to the locals, who view all birdwatchers as slightly mad.

Little freshwater ponds host their own variety of neotropical wonders. Scrub willow and an occasional mulberry tree are the place to look for Painted Bunting, one of the most beautiful of the Almighty's flying jewels. They are often seen in company with Indigo Bunting. As in many species, the female Indigo is rather drab and sparrow-like, but the male is a resplendent, iridescent blue, his nuptial molt begging to be recognized.

Each part of the varied topography has its own avian groupings. The feeding habits are designed by nature so that there is minimal overlapping of the niche that eons have established. Each species has a limited food source on which it can depend.

On a day spent in the thickets and on the beach it is not unusual for a novice to identify as many as 90 species. A more experienced birder will sometimes see more than a hundred.

Spring is also the time to watch for raptors on telephone wires along the road. Red-shouldered, Red-tailed, Sharp-shinned and Broad-winged Hawks are seen perched and ever alert for rabbit or rodent. The Northern Harrier soars a few feet above the marsh, the white parch of his rump a flag that marks him plainly. Kestrel, the ubiquitous sparrow hawk, is the smallest of our raptors, often mistaken for a dove when perched at a distance. Binoculars or spotting scope will quickly catch his magnificent sienna breast and its black highlights, his sideburns very similar to those of his larger cousin, the Merlin.

Folks who have traveled all over the globe come away after a day like this swearing it's as fine as any area they've ever birded.

One wonderful thing about this resource is that these visitors are utilizing a non-consumptive state asset. Most leave nothing but footprints and take away nothing but priceless memories.

And there are potential benefits to the economy, both for Grand Isle and for the state as a whole. There is a lovely state park on the beach at the eastern end of Grand Isle. A wooden tower with adjacent picnic area and restrooms has been constructed. This allows visitors with binoculars or spotting scopes a vista that stretches over brackish ponds on one side and, on the other, a magnificent beach awash in gulls, terns and shore birds. Senior citizens are admitted free and the toll for other visitors is nominal. The fee varies with the facilities used, which include 100 unimproved campsites, primitive group campsites, a dump site for trash disposal, a camp store, rental shelters and swimming, boating and fishing in the surf.

Motels and restaurants on the island offer the visitor fresh seafood. Inexpensive lodging is there for the less venturesome who find tenting a bit more than they're ready for. And the hiking trails among the cord grasses and along the beach are an adventure in themselves. Shorebirds scurry about the water's edge. Brown Pelicans glide over wave tops in an effortless search for bait fish. A host of gulls and terns scream in the bright spring sun that follows the fronts.

I'm watching the satellite weather broadcast closely. Two days after a front, rainy weather and cold, I'll be racing to that wonderful extravaganza that Mother Nature has provided -- a fallout at Grand Isle. Remember, identifying birds is like getting to know your neighbors. At first they may be difficult to tell apart, but repeated contact makes each a distinct entity that will enrich your life by their proximity. ■

The Rose-breasted Grosbeak migrates through the oak chenier of Grand Isle, feeding on mulberries after a long flight over the Gulf of Mexico. It then will continue its migration further north to nest.

Photo by William Ayres

LDWF file photo

A View From Above

BY ANDY CRAWFORD

La. Department of Wildlife and Fisheries personnel have for years used aircraft to accomplish their mission to manage wildlife and fisheries resources. With budget restrictions occurring throughout state government, the Aviation Section has proved vital in allowing fewer staff members to accomplish that goal.

In 1965, biologist Arthur Williams boarded a small airplane, flew to South Carolina and picked up 750,000 striped bass fingerlings. The small fish were flown to Louisiana and released in D'Arbonne Lake, the Biloxi Marsh and Toledo Bend. Officials lost track of those released in the Biloxi Marsh after Hurricane Camille, but the others thrived and Department of Wildlife and Fisheries biologists watched with excitement as their numbers grew.

Almost 30 years later, striped bass released into Louisiana waters number in the tens of millions and waterbodies throughout the state contain the highly popular sport fish. The huge bass offer recreational anglers accustomed to catching 5- or 6-pound black bass the opportunity to catch fish routinely weighing more than 15 pounds.

A stocking program of this magnitude would not have been possible without using airplanes. Williams, now programs manager of LDWF's Inland Fisheries Division, says striped bass eventually would have been stocked in state waters, but without aircraft the numbers would have been significantly lower and it would have been much more expensive.

"It's safe to say that without the airplanes, we would not have made the breakthrough with striped bass that we have made," he said.

The airplane used to bring the first striped bass to Louisiana was part of LDWF's Aviation Section, which today is composed of five aircraft. The airplanes -- one single-engine and one twin-engine land-based airplane, one amphibian and two sea planes -- are essential tools in accomplishing LDWF's mission to better manage the state's natural resources.

The Aviation Section falls under the umbrella of LDWF's Office of Wildlife and is supervised by Chief Pilot Eugene Rackle, who is responsible for ensuring maintenance of the planes and training of the pilots. Bruce Stamey is a pilot with the section, biologist Mike Windham pilots for the Fur and Refuge Division and Enforcement Agent Daniel Clause pilots the enforcement airplane.

The craft are used by every departmental section for many vital tasks, including waterfowl surveys, aquatic weed control surveys, telemetry studies of wildlife, surveys of Bald Eagle and other endangered species populations, shrimp season surveys, and routine evaluation of pipelines crisscrossing the coastal marshes. They also are used to inspect environmental damage caused to wildlife and fisheries during ecological events or disasters.

One of the land-based craft, one sea plane and the amphibian are LDWF-funded. The second land-based craft was purchased and is operated primarily with federal Pittman/Robertson funds. The second sea plane was bought and is operated with Rockefeller Foundation Funds. That airplane is primarily used by LDWF's Fur and Refuge Division to ensure compliance with the Rockefeller Foundation Deed of Donation.

Like striped bass stocking, many departmental programs would be almost impossible without airplanes.

In the early days of the striped bass program, LDWF officials tried commercial air freight, but found delivery undependable. For example, fish might not be shipped in a timely fashion, leading to high mortality rates for the fingerlings.

"You've got a limited number of hours that fish can be boxed. You may waste a week's work, two week's work, and we've done that, trying to ship them by air freight. It just can't be done," Williams said.

Officials turned to the Aviation Section and quickly found that, by using departmental aircraft, millions of striped bass fry could be easily, quickly and cheaply transported with very little loss.

"It would cost twice as much, maybe three

Pilot Bruce Stamey and biologist Fred Kimmel detach antennae from one of the LDWF airplanes after returning from a telemetry survey of quail at Sandy Hollow Wildlife Management Area.

Photo by Andy Crawford

Photo by Andy Crawford

Kimmel listens for radio signals which indicate the location of quail at Sandy Hollow WMA. Bilogists regularly use aircraft to conduct telemetry studies, which allow scientists to learn animals' movement patterns.

times as much, to send a guy to get them," Williams pointed out.

The Inland Fisheries Division also uses the Aviation Section to gather data when formulating management policy.

Biologists learned of the scope of post-Hurricane Andrew fish kills through flights over affected areas. The view from above quickly showed that fish populations were hit much harder than anticipated.

The Aviation Section also plays an important role in making creel surveys more accurate. Biologists work in tandem from boats and from airplanes: those in boats count and measure fish caught in an area by recreational fishermen, while airborne biologists get an accurate count of boats in the same section of a lake or river. The expanded data can be used to adjust measures put in place to manage fisheries resources.

Surveys also are made of state waterways to assess infestations of water hyacinths and to keep track of efforts aimed at controlling these noxious plants.

The department has had a pilot/agent assigned exclusively to the Enforcement Division for the past three years. The LDWF-funded sea plane is dedicated to this purpose.

The sea plane is used primarily on the coast, which is almost impossible to patrol adequately from the ground because of the vast area involved, Capt. Keith LaCaze said.

"It's vital to the coastal operation because we can cover an incredible amount of coastline in a relatively short period of time," LaCaze added.

While flying patrols, the pilot/agent enforces oyster regulations and all commercial fishing laws, including illegal gill netting and trawling. Flying a sea plane allows the pilot to land and issue citations if he observes illegal activities.

The airplane is also used to enforce hunting regulations, with checks for duck and dove baiting, night hunting and other infractions.

All of this leads to better enforcement of state laws with fewer agents.

"We wouldn't be nearly as efficient without the airplane. There's just no way you can check all areas from the ground and there's no other way you could keep up with all the commercial activities," LaCaze said.

Aircraft also are essential to LDWF's Fur and Refuge Division, which is responsible for environmental oversight of about 500,000 acres of coastal wildlife management areas and refuges stretching from the Mississippi state line to the Texas state line.

Among duties performed by the division are overseeing oil and gas production, seismic activities, and marsh restoration and mitigation projects. These responsibilities require traveling to inaccessible areas.

"I view the aircraft as an essential piece of equipment for proper environmental oversight of these remote coastal areas," Fur and Refuge program manager and pilot Mike Windham said.

The sea plane operated by Fur and Refuge allows biologists to quickly update information about various projects in Louisiana's marshlands. In some instances this translates into money for the Department: about $400,000 a month comes into the Department from various land management activities monitored by the division.

Windham also relies heavily on the use of airplanes when formulating marsh mitigation projects which commercial interests are required to complete if the environment is damaged by their work in the coastal region. Additionally, the aircraft is used for oil spill response, which requires immediate action.

"With an overflight, you get the full picture of what wildlife and fisheries resources are potentially impacted," Windham said.

The primary use of the Pittman/Robertson-funded plane is waterfowl surveys, which allow biologists to monitor duck and goose activity in Louisiana. This state contains the nation's most important wintering grounds for migrating waterfowl, so flock counts are important in gauging the health of duck and goose populations nationwide. The plane is used for numerous other projects, as time and federal restrictions allow.

One such use is surveying areas in preparation for LDWF land acquisition, allowing easy identification of land characteristics such as wetlands, woodland types and agricultural areas, leading to a determination of whether purchase of the property is worth pursuing. Instead of spending days or weeks surveying an area on the ground, officials can make one aerial survey and determine if a piece of land contains suitable habitats.

Robert Love, Wildlife Division programs manager, said use of airplanes is essential in getting an overall view of property considered for purchase. Such purchases create new or expanded wildlife management areas and wildlife refuges.

"A lot of times the best way to look at something and put it in perspective is by looking at it from the air. It enables you to see things that you couldn't see driving or walking through the woods: old cleanup sites, abandoned oil wells and garbage dumps," Love said.

The Department has purchased 20,000 acres during the past two years for wildlife management, but Love estimates that four times that much was surveyed for possible acquisition.

A new use for the Aviation Section was found in January, when LDWF investigators began making use of airborne surveillance of Louisiana's rivers and streams to find violators of state dredging regulations. Aerial photographs are used to determine if dredging operations are operating on state waterways and, therefore, must have permits.

The investigators attempted for several months to monitor these businesses from the ground, but had problems even finding dredge operations.

"It's almost impossible to do that on the ground. You can't view every foot of river by car and it could take weeks to do it by boat," investigator Patrick Lowery said. "The plane is the only way to do it and know you have covered every part of the stream or river."

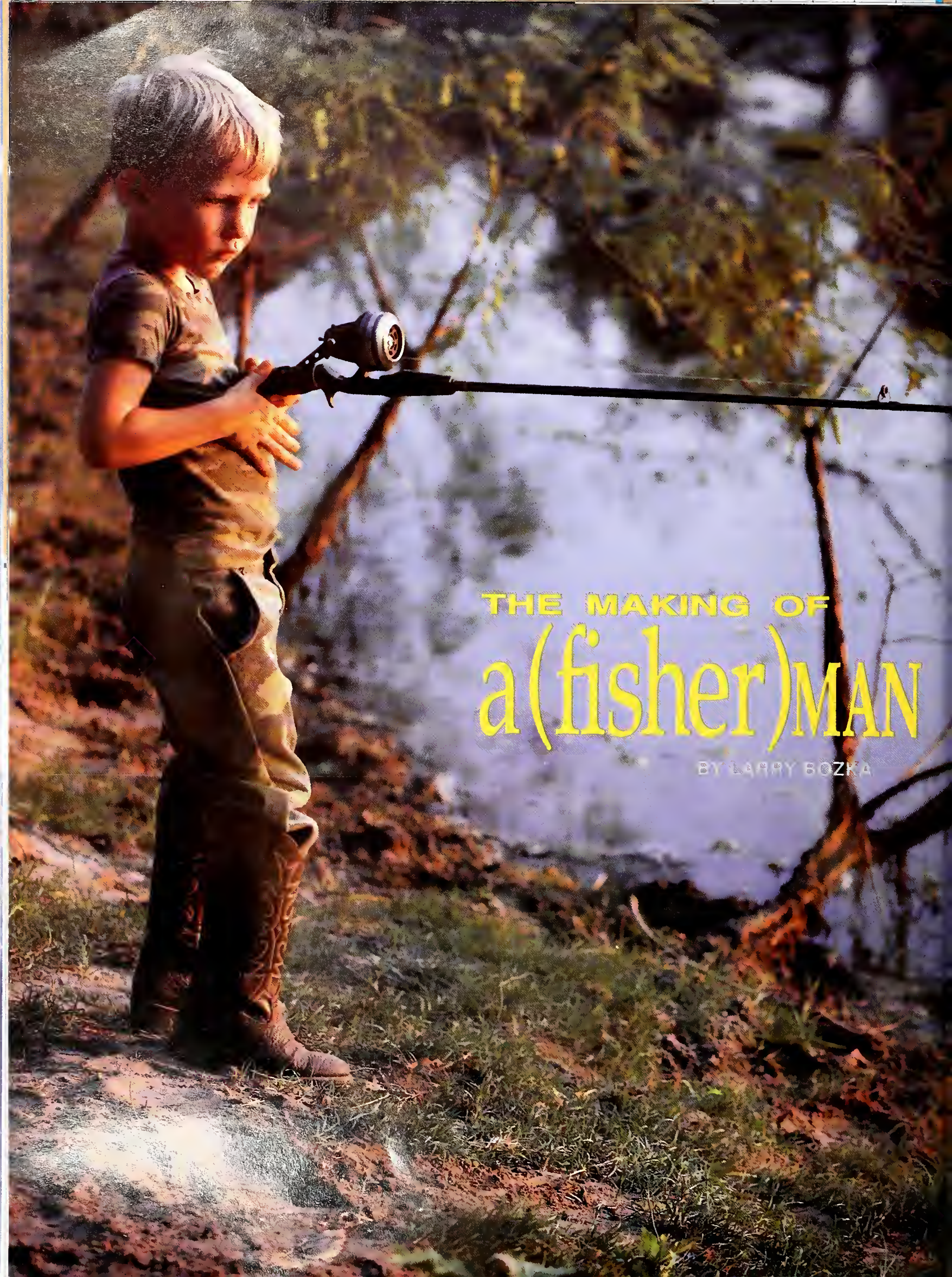
The goal of airborne surveillance is not to stop dredging, he said, but to ensure that the state is being compensated for the removal of sand and gravel.

Because sand and gravel dredging operations have not been strictly regulated in the past, it is too early to tell with any certainty how much money will be generated by enforcing permit regulations. Lowery and fellow investigator J.W. Smith, however, are confident their efforts will pay off.

Budget restrictions occurring throughout state government have forced Department of Wildlife and Fisheries personnel to look for more efficient ways to accomplish their duties. The Aviation Section has proved vital in allowing a minimum number of staff members to monitor and protect the vast natural resources of this state. ■

LDWF file photo

Departmental investigators use aerial photos to determine if a dredge is operating in state waters and if a dredge permit check is thus warranted.



THE MAKING OF a(fisher)MAN

BY LARRY BOZKA

That the catching of a 4-inch-long hardhead catfish could be considered a precious and memorable experience is in itself a bit difficult to believe. That it happened over 30 years ago is even more difficult.

But if you've never caught a fish, any fish is a good one. And when your dad's there to handle it for you, well ... it don't get no better than that. Not when you're 5 years old.

My father took it off the hook, telling me the whole while that if I ever dealt with one carelessly it would hurt like sin. Years later I did, and it did.

He was there when it happened. I got careless and let one of the nasty little scavengers plant its dorsal barb deep in my kneecap, and when Dad jerked it out with a pair of pliers we reached another landmark of adolescence.

It's hard to forget the first time you curse profusely in the presence of your father. Evidently, he felt that the severity of the pain more than compensated for my sudden indiscretion. He didn't say a thing.

His advice, not just on handling catfish but also a great many other things, was invariably sound. He let us make our own choices, but always kept an eye open. He fixed our cars. He loaned us money. He looked out for us. He did a lot of things for me and my brothers that other fathers do for their children every day. But most of all, he took us fishing.

The importance of the latter is considerably greater than you might suspect. A father has to be together with his kid before anyone does any listening. When you're mutually held captive in a boat while pursuing a common goal, specifically a school of redfish, listening is a natural by-product. So is talking. And barring mishaps, so is having fun.

We always had fun.

No, Virginia, not all kids have fun when they go fishing. Their fathers no doubt mean well, but they just don't know the right way to take a kid fishing. I know only because my father showed me how. It was something I needed to learn.

There are many things you can do to assure a child's chances of wanting to go again. And there are a few things, on the other hand, that can sour a kid on fishing for an eternity. Like nearly dying of seasickness while good ol' dad tries for "just one more." My father always took us to shore before any vital signs began to fade, and for that we have always been enormously grateful.

Aside from that, he kept us from getting hurt. My dad exemplified the Boy Scout motto of "Be Prepared." Short of a full-blown shark attack, there was little for which we were not prepared.

The occasion never arose, for example, when we were on the water without a first aid kit. A jar of meat tenderizer provided relief from jellyfish burns when necessary. Until we were older, no amount of grousing and grumbling could keep a life jacket off our shoulders. When the sun came up high, the sunscreen went on. When we got tired, he called it a day.

And, perhaps most incredibly, when we backlashed, he untangled our lines. I recall casts that ripped 60 feet of line off the reel and landed 3 feet from the boat. Mating pelicans couldn't build nests larger than the ones my brothers and I routinely created in our fishing reels. My father dismantled each and every one with the unfazed determination of a man on a mission.

Because he was.

Don't let anyone kid you. Taking a kid fishing isn't all fun. Just mostly fun. As is the case with most other virtuous deeds, it can be a real pain in the butt. My father knew what to expect, and despite that fact continued to take us fishing year after year. From experience he knew the payback, but I never recognized it for what it was until I was blessed with a son of my own.

Fishermen. It takes one to make one.

It's a wonderful feeling when a father tells his children that he loves them. But it's even better when he takes the time to show his love. Below, is a photo of Bill Bozka, Sr. on his last offshore fishing trip, where he hooked a 45-pound amberjack. A fitting end to the legacy of a man who spent his life demonstrating his love by teaching his sons the joys of fishing.

Photo by Larry Bozka

I know now how incredibly fortunate I was to have a father who fished. He took me, my brothers and a great many of our friends fishing on a fairly regular basis. Were it not for the fact that my father was a fisherman, I seriously doubt that I would be one today.

I realize now that becoming a fisherman is no matter of chance. You either have someone ... a father, a brother, an uncle, a neighbor or friend ... who one day takes you fishing and does it right. Or you don't.

Few people enter the sport of fishing as a solitary undertaking. It's really not too difficult to understand why.

There may be those who like to fish alone, but not the people I know. Fishing to us is a communal sport, and fishing alone seems unnatural. We'll spend hours at a time in solitary confinement, peeking through the narrow window of a 3-foot-square deer blind while scanning the underbrush with binoculars. But put us out in a boat with a rod and reel and we're immediately looking for company.

Fishing alone isn't much fun. Fishing with my family was an institution. Over the years, my mother finally resigned herself to the fact that photographs of children must include fish being held in various poses. Fishing was, and still is, an integral part of our lives.

Larry Bozka and his son, carrying on the tradition of his father. It takes a fisherman to make a fisherman.

Photo by Mary Bozka

The sound of breaking ice never fails to remind me of my father. It was a forceful noise that rousted my brothers and me for years, an unspoken but unmistakable signal that ice chests were being loaded and that it was time to get up and get moving. Today the prospect of climbing out of bed at 3 a.m. sends fingernails-on-the-chalkboard shivers down my spine, but back when I was 8 or so, hitting the road hours before sunrise seemed like the biggest treat in the world.

Because with my father, it was.

Young men generally idolize their fathers until they reach their freshman or sophomore year in high school, at which time the old man abruptly acquires the intellectual capacity of an orangutan. It takes him at least six to eight years to once again become a mental giant. Until then, there's usually a communication gap that's wider than the Gulf of Mexico.

Not so if your dad is a fisherman and includes you in on the deal. Philosophies meld and concentration on the task at hand becomes priority number one. Mutually addicted anglers do what they have to do. They get up at obscene hours and they get along. Sometimes they even catch fish.

Usually, catching fish wasn't much of a problem for my father. He'd sit there until they bit, soaking a jumbo shrimp with a satisfied grin on his face that he only got when his line was in the water. He caught fish with amazing regularity and over the years we learned how he did it. He taught us.

He also released fish with regularity and we learned that, too. For a kid, it's just as important to know how to let a fish go as it is to know how to catch one.

My father died a year and a half ago at the all-too-young age of 62. His only regret was that he wouldn't be able to take his grandkids fishing. My brothers and I will cover that one for him ... maybe not quite as well, but to the best of our ability.

Just as I learned from my father's life, I also picked up a thing or two from his death. Foremost was the understanding that memories of time spent outdoors may well be the most wonderful legacy a man could ever hope to leave to his children.

Granted, it's great when your dad tells you he loves you. But it's the ultimate when he takes the time to show it. ■

Photo by Gary Ross

THE Trans-Gulf Express

BY PROF. GARY NOEL ROSS

For the past four years in Baton Rouge, each Earth Day celebration has proven an extraordinary and memorable event. In the minds of most of the capital's residents and visitors, the 1993 anniversary ranks as numero uno. The showcase event was undoubtedly the "All Species Parade," in which 300 school children (along with at least 50 supportive older folks) masqueraded as plants and animals commonly found throughout the state, as well as in or over the waters of the Gulf of Mexico. Although all costumes sported a professional, eye-catching pizzazz, the uncontested crowd- pleaser was the parade mascot, a monarch butterfly. The huge orange and black celebrity figure not only towered above the throngs, but also symbolized Louisiana's pivotal role in the butterfly's unique and widely

Photo by Gary Ross

The bright yellow paint on offshore rigs is a factor contributing to the massive number of monarchs making pit stops along the Gulf of Mexico. Scientist think monarchs mistake yellow as goldenrod or autumn foliage and home in on it as a source of nourishment.

publicized annual migration: a recent discovery that each spring and fall thousands upon thousands of the gossamer-winged insects fly hundreds of miles over the open waters of the Gulf between Louisiana and Mexico rather than skirt the coastline in a longer landlocked route, as was previously believed.

As I watched the colorful queues wind their way along the downtown route, I, too, raised my hands and voice in jubilation, for I was the first scientist to actually document the trans-Gulf phenomenon in October 1991. Now, three years later, the monarch mascot was a fitting tribute not only to the butterfly, but to that discovery as well.

My first clue that monarchs were negotiating the Gulf of Mexico dates back to the 1960s. As a graduate student at Louisiana State University, I assisted several of my fellow zoology students researching the then newly-discovered trans-Gulf movement of eastern song birds. By focusing powerful telescopes on the full moon during the clear nights of autumn and spring, we could actually count birds as their silhouettes crossed the bright disk. Occasionally, however, we noticed other forms such as dragonflies and monarch butterflies (the monarchs could be identified by a telltale soaring flight pattern). Although we diligently chronicled the non-bird crossings, we unfortunately dismissed the unique data as interesting, but merely tangential. As such, the data were forgotten.

Then, in the late 1980s, while researching the natural history of the cheniers (oak-clad ridges surrounded by marsh) in Cameron Parish, I observed that the remnant oak forests there hosted amazing numbers of monarchs each March and October -- key migration months. Furthermore, close observation indicated that many of the butterflies in the spring were arriving *from* the south (the open Gulf); in fall, the migrants departed *to* the south (again, over the Gulf).

Finally, in the summer of 1990, a brief description appeared in a newsletter for butterfly enthusiasts claiming that "on the 17th and 18th of October, every year for the past 18-19 years, monarch butterflies in immense numbers alight on and rest on an offshore oil production platform in the Gulf of Mexico."

I could resist committing myself to the phenomenon no longer. Delving into the scientific literature I learned that the paradigm for monarch migration did not include night flying or navigation over expansive waters. I continued my sleuthing in Lafayette, the oil capital of the state. There I eventually located Tom Schaal, a veteran pilot with Petroleum Helicopters Inc. (PHI). Tom told me that on several occasions he had personally witnessed numbers of monarchs on a UNOCAL gas production platform located in West Cameron Block, approximately 70 miles south of Cameron. By fall of that same year, I had requested and received permission from UNOCAL to board their WC-280 complex in hope of studying the itinerant insects.

Now, after two years of continued cooperation from UNOCAL and PHI, I have amassed substantial data that allow me to advance new theories on monarch migration. In summary, my conclusions are as follows. More than 20 rigs and production platforms, ranging from just a few miles to more than 145 miles offshore, repeatedly host monarch butterflies in mid-October (there are fewer sightings in mid-March, but all are within the same grouping of structures). When plotted on an aeronautical chart, the data create a compelling picture: a specific flyway approximately 90-100 miles wide extending from southwest

Louisiana to (by extrapolation, since no rigs exist in the deep waters of the Gulf and no Monarch tagged on WC-280 has yet been recovered) northeastern Tamaulipas, Mexico.

The flight path for the butterfly is consistently south-southwest in October and north-northeast in March. The insects seem to ride prevailing winds. The tenacious migrants, however, are able to hold to their apparently prescribed course even with strong head winds.

Generally, the butterflies fly 30-130 feet above the warm Gulf waters, seemingly taking advantage of the buoyancy created by thermal uplift. At peak migration, an average of one to two butterflies per minute can be seen, often circling the platforms. During both the 1991 and 1992 observations, at least one platform near WC-280 was inundated by hundreds if not thousands of butterflies, usually at dusk. The majority remained throughout the night. Some, however, departed into the darkened sky after only a brief respite.

A question that continues to intrigue me is, how do the butterflies home in on the offshore structures? My research again offers compelling evidence. Of the total number of butterfly sightings, 90 percent involve man-made structures that are yellow in color. (UNOCAL is the only company that consistently uses a bright yellow paint for its offshore facilities). Since monarchs are known to be highly sensitive to the color yellow, I am convinced the migrants mistake the colorful protuberances in the Gulf for patches of goldenrod, a favorite source of nourishing nectar, or perhaps even for trees bedecked in autumn foliage. Odds are, the platforms signal irresistible "pit stops."

But there probably is at least one other factor: magnetism. Scientists have known for quite some time that the body of the monarch contains small quantities of magnetite, a kind of biosynthetic compass that presumably empowers these insects with the ability to orient to Earth's natural geomagnetism, and therefore navigate accurately over great distances (the record for one tagged monarch stands at 2,133 miles). Since the offshore facilities continually generate substantial electro-magnetic fields (electrical generators, telecommunication equipment, massive iron construction), I theorize that the insects' genetic programs are probably fooled by the more than 3,000 man-made structures fanning out from the Louisiana coast. In essence, the butterflies are "pulled" farther offshore by false readings from their internal compasses. Once over the Gulf, the insects' visual fine-tuning for yellow and bright light dictates a descent. If nightfall is imminent, most butterflies simply remain and rest until the following dawn. Then, with renewed vigor and in the absence of suitable nourishment, the instinct to migrate drives them onward to complete their remaining hours of over-water journey.

Although I am not yet in a position to propose that the oil industry's development in the Gulf of Mexico over the past 50 years has inadvertently sparked the evolution of a new, more direct flyway for the monarch, I do believe that the trans-Gulf flyway does offer the migrants a definite advantage: by providing a shorter route complete with open-sea oases, the butterflies are spared the perils of a longer, more-time consuming landlocked route. In evolutionary terms, the "Trans-Gulf Express" increases survival potential for the species. As such, what may have begun as only a chance wandering is now being continually reinforced and expanded.

Time will tell. But for now, the seemingly unholy alliance between oil, water and butterflies is, at least in one segment of the Gulf south of Louisiana, proving to be remarkably "environment friendly." ■

At peak migration an average of one to two butterflies a minute can be seen circling the platforms. During the migration time, butterflies can be seen everywhere on the rigs.

Photo by Gary Ross

Louisiana Hunting and Fishing Regulations 1993-94

LOUISIANA HUNTING SEASONS 1993-1994

"Respect the Landowner"

The following is only an abbreviated summary of rules and regulations governing the taking of game animals within the State of Louisiana. For additional information, consult the 1992-93 Louisiana Hunting Regulations pamphlet available wherever hunting licenses are sold.

RESIDENT GAME BIRDS AND ANIMALS

Shooting Hours: *One half hour before sunrise to one half hour after sunset.*
Quail: November 25-February 28. Daily bag limit 10, possession 20.
Rabbit: October 2-February 28. Daily bag limit 8, possession 16.
Squirrel: October 2-January 30. Daily bag limit 8, possession 16.
Deer: One per day. 6 per season.
Archery Segment: October 1-January 20.
Muzzleloader Segment: December 6-10 (Areas 1-5 & 7).
November 29-December 3 (Area 6).
Raccoon and Opossum: No closed season. (See pamphlets for additional regulations.)
Crows, Blackbirds are considered depredators in Louisiana and may be taken year round during legal shooting hours.
Commerical Hunting Preserves: October 1-April 30; pen reared birds only.

WHITE-TAILED DEER

Bag limit is one legal deer per day, six per season. Hunting is restricted to legal bucks only, except where specifically permitted. A legal buck is a deer with visible antlers of hardened bony material, broken naturally through the skin.

Either-sex deer is defined as male or female deer. The taking of spotted fawns is prohibited.

It is illegal to hunt or shoot deer with firearms smaller than .22 caliber centerfire or a shotgun loaded with anything other than buckshot or rifled slug. Handguns and muzzleloaders are permitted.

Pursuing, driving or hunting of deer with dogs during the still hunting season is prohibited.

Hunter Orange: Deer hunters, while on publically-owned land, shall display a total of 400 square inches of "Hunter Orange" material on the head or chest and/or back. Persons hunting on privately-owned, legally posted land shal wear at least a hunter orange cap. Archery hunters need not wear hunter orange where deer hunting with firearms is not allowed or if there is no gun season for deer in progress.

Wildlife Management Areas: *Obtain pamphlet for schedule and map.*

1993-94 DEER HUNTING SEASON

To be announced in the 1993-94 Louisiana Hunting Regulations pamphlet available September 1993.

1994 TURKEY HUNTING SEASON

Daily limit one gobbler; three per season. Still hunting only. Big game *and* basic hunting licenses required. Dogs, baiting, live decoys and electronic calling devices are illegal. May be hunted with shotguns, including muzzleloaders, using shot no larger than size #2 lead or BB steel or with bow and arrow but by no other means. Shooting from moving or stationary vehicles prohibited.

DATES: *To be announced in the 1993-94 Louisiana Hunting Regulations pamphlet available September 1993.*

1993-94 MIGRATORY BIRD HUNTING SEASONS

Migratory bird hunting dates and regulations to be announced in the Migratory Game Bird Hunting Regulations pamphlet available October 1993.

FISHING REGULATIONS 1993

of Louisiana. For additional information, consult the current Louisiana Fishing Regulations Pamphlet available wherever fishing licenses are sold. Obtain information on federal regulations from the Gulf of Mexico Fishery Management Council at 813/228-2815.

FRESHWATER GAME FISH REGULATIONS

Species	Size Limit	Creel Limit	Exceptions
Black Bass	None	10	*
	*See the 1992 Louisiana Fishing Regulations Pamphlet for additional regulations on trophy/quality/border lakes.		
White Bass	None	50	None
Yellow Bass	None	50	None
Striped Bass or Hybrid Striped Bass	Only 2 over 30 "	5 (Any combination)	None
Crappie	None	50	None
Bream (Bluegill, Sunfish)	None	None	None

(All length limits are "total lengths.")

Species	Recreational	Commercial
Spotted Seatrout (speckled trout)	12" minimum 25/person/day*	14" minimum 1.0 M pounds/year
Red Drum (redfish)	16" minimum only 1 over 27" 5/person/day*	Closed
Cobia (lemon fish)	37" minimum 2/person/day	37" minimum 2/person/day
Spanish Mackerel	14" minimum 10/person/day	14" minimum
King Mackerel	14" minimum 2/person/day	14" minimum
Sheepshead	No regulations	10" minimum
Black Drum	16" minimum only 1 over 27" 5/person/day*	16" minimum 27" maximum, 3.25 M lb./year Also, over 27", permit required, 300,000 fish/year

This number is also the possession limit. See the 1993-94 Louisiana Fishing Pamphlet for more information on saltwater species.

HUNTING & SPORT FISHING LICENSES

Mandatory Hunter Education Training: *All persons born on or after September 1, 1969 must show proof of satisfactorily completing a Hunter Education course approved by the Department of Wildlife and Fisheries in order to purchase a Basic Hunting License.*

HUNTING

Resident (All person ages 16-59 inclusive)		
a.	Basic Season (Excluding Big Game)	$10.50
b.	Big Game (Required of all Deer and Turkey Hunters in addition to basic license)	$10.50
c.	Archery License	$10.50
d.	Muzzleloader License	$10.50
e.	Migratory Waterfowl Conservation Stamp (Duck Stamp)	$5.00
f.	Universal License	$53.00
g.	Wild Louisiana Stamp	$5.50
Non-Resident		
a.	All Game Season	$160.50
b.	All Game Trip (5 Days)	$95.50
c.	Basic Hunting Season (Excluding Big Game)	$86.00
d.	Hunting Trip (5 Days, Excluding Big Game)	$51.00
e.	Bow License	$25.50
f.	Muzzleloader License	$25.50
g.	Migratory Waterfowl Conservation Stamp (Duck Stamp)	$7.50
h.	Migratory Game Bird (3 Days)	$45.00
Commercial Hunting Preserve (Pen-raised birds only; Expires June 30)		$200.00
Game Breeder (Expires Dec. 31)		
Raising/selling wild game birds and/or wild game quadrupreds		$25.00

Lifetime License

Resident Lifetime Fishing License (Age 14 & over)	$300.00
(Under age 14)	$200.00
Resident Lifetime Hunting License (Age 14 & over)	$300.00
(Under age 14)	$200.00
Resident Lifetime Combination Fishing & Hunting License (Age 14 & over)	$500.00
(Under age 14)	$300.00
Non-Resident Lifetime Hunting & Fishing	$3,000.00

FISHING

All basic sports fishing licenses and recreational gear licenses expire June 30 each year.

1.	Universal Fishing License (Cane pole/hook and line license)	$2.50
2.	Resident Basic Fishing License	$5.50
3.	Non-Resident Basic Fishing License (Season)	$31.00
4.	Non-Resident, seven consecutive days	$26.00
5.	Resident Saltwater Angler's License (Required in addition to basic license)	$5.50
6.	Non-Resident Season Saltwater Angler's License (Required in addition to non-resident basic fishing license)	$36.00
7.	Non-Resident 7-Day Trip Saltwater Angler's License (Required in addition to basic 7-day trip license)	$26.00
8.	Non-resident 2-Day Trip Combination Basic Fishing and Saltwater Angler's License	$23.00

A recreational fisherman must purchase and have in possession a basic recreational fishing license to use the following gear:

(1) Hook and line
(2) Bow and arrow
(3) A barbless spear
(4) Castnets with a radius not to exceed 8' x 6"
(5) Frog gigs or catchers
(6) Scuba gear

Residents and non-residents under 16 and residents 60 years of age and older residing in state for two years are exempt from purchasing fishing licenses. A recreational gear license is required of all persons using recreational gear; no exceptions or exemptions. For additional exceptions for disabled veterans, military personnel and handicapped residents, call the Louisiana Department of Wildlife and Fisheries, Sport Licensing Division: 504/765-2887.

Help stop poaching. Call Operation Game Thief's toll-free hotline. 1-800-442-2511

Louisiana Department of Wildlife and Fisheries P.O. Box 98000, Baton Rouge, LA 70898

Photo by Carle Dunn

Archery
ON THE INCREASE
PART 1

BY CARLE E. DUNN

Archery is a year round activity that incorporates more than just hunting.

Flames from an ancient fire cast alternating shadow and light upon rocky, damp cave walls as a grizzled precursor of modern man painted creatures being slain with bows and arrows. A small clay dish filled with animal fat provided additional light as it burned. From another container, filled with a mixture of blood, animal fat and natural mineral pigments, he dipped a stick and placed his markings. Holding a torch to examine the results, soot marred his work. The markings remained through thousands of years.

Interest in bowhunting has skyrocketed during the last few years. In the 1991-92 hunting season, Louisiana residents purchased 32,912 archery stamps.

Throughout the world, individuals are returning to hunting methods depicted by the ancient cave dweller. Louisiana is no exception and Timmy Carter of Zwolle is part of it.

Carter is a professional custom bow designer and an avid hunter. He operates Timmy's Video and Archery and what he produces is barely similar to bows and arrows of times past. Carter's expertise represents a growing sport which is now an Olympic event. Yet its origin predates cave-dwelling artists.

According to the 1990 edition of *Grolier's Illustrated Encyclopedia*, the bow and arrow, in many variations, have been used by most civilizations. The first archery equipment, it is believed, was made from wood and hide. The earliest information, however, comes from the Paleolithic (Stone) Age: knapped (chipped) flint arrowheads and, much later, cave paintings of archers. Today's archery equipment supersedes that of the ancients by far. Archery has changed dramatically and individuals are flocking to it in a big way.

Statistics show archery is a major, vastly popular sport. The American Archery Council (AAC) reports that an average bowhunter spends nearly $1,000 each year in pursuit of the sport. Hunters annually contribute more than $9.8 billion to the nation's economy. Bowhunting makes up about 25 percent of this total. AAC states that each bowhunter spends an average of 44 days a year pursuing the sport.

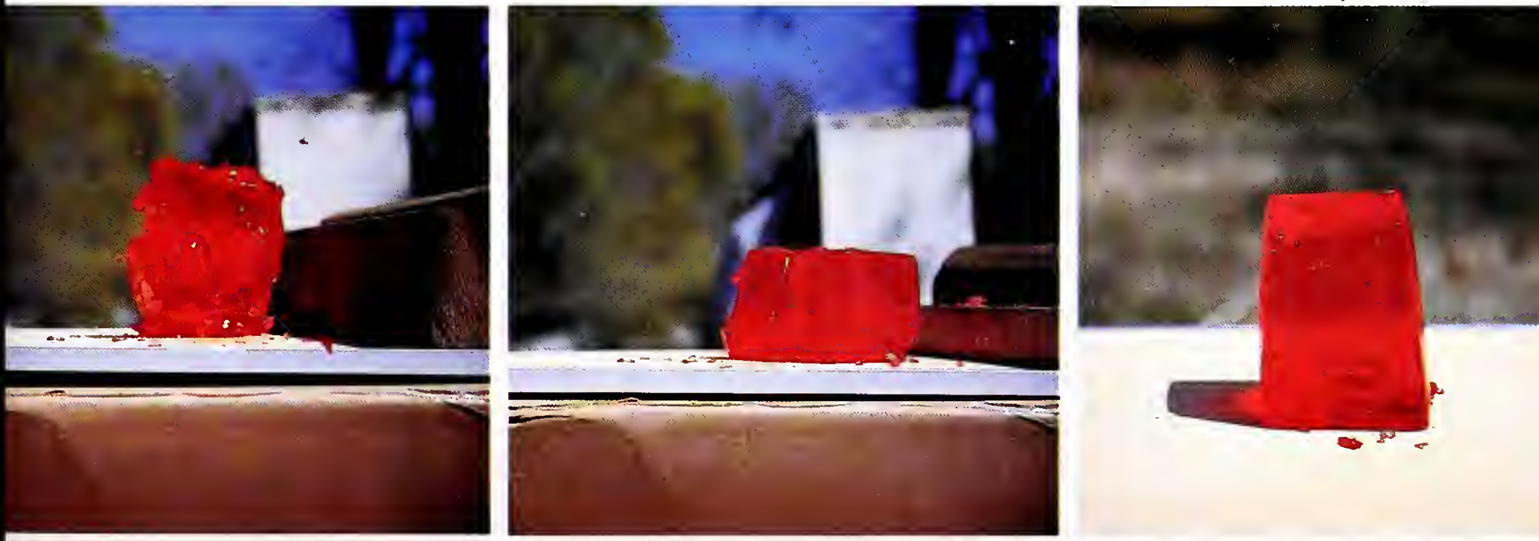
This translates into a significant Louisiana outdoor activity. During the 1990-91 hunting season, residents purchased 30,077 archery stamps. The following year the total was 32,912 -- an increase of 2,800. According to the Sports License Section of Louisiana's Department of Wildlife and Fisheries (LDWF), sales this year are brisk and another increase will likely take place.

Why are Pelican State hunters drawn to this ancient hunting technique? "The main reason," Carter said, "is that bowhunting extends a person's hunting season almost two months more than with a gun. That's what people are going after. In addition, those who kill a deer with a bow will probably never want to use a gun anymore. The sport is just unreal. It's more challenging."

Furthermore, Carter explained that hunting is not the only aspect of archery. "Archery is a year-round activity," he said. "A person can participate in a non-consumptive way."

"For instance," he added, "I belong to an archery club in Shreveport. There is an indoor range where members can practice and there are tournaments. In addition, there are 3-D courses to hone hunting skills."

Carter explained that a 3-D course consists of targets that are life-sized replicas of various game animals. The targets are placed in a natural setting which a hunter might encounter in the wild. An individual moves through the course from station to station to encounter the targets. There is a time and movement limit to make a shot. "It's a tremendously challenging experience," Carter said.



Below is a series of photos showing the difference in impact of 9mm bullet and broadhead tipped arrows. The first two photos show a block of jello erupting from the impact shock of a 9mm copper-metal jacket hollow point round fired from 30 yards. The last photo is after being hit 15 times with a broadhead-tipped arrow from the same distance. The penetrations are almost surgical and undetected.

Photos by Carle Dunn

Photos by Carle Dunn

Above, Carter adjusts a bow for the particular strength and height of the owner. Below is a display of various arrow components, each used for specific hunting results.

GENERAL CHARACTERISTICS

The average length of a modern longbow is about six feet for men and 5 1/2 feet for women. The force required to draw the bowstring to its extremity is called the bow weight. The string side of a bow is called the belly, and the other side is called the back. The length of a modern arrow ranges between 24-32 inches. Most archers use an arrow slightly longer than his or her arm.

BOWS

Bows are constructed in three basic forms. A self-bow is made of one homogeneous piece of material, while a built bow is made of joined pieces of the same material. The third form is a composite bow and consists of different materials. Most modern bows are of composite plastic construction, a feature that eliminates variable and undesirable characteristics found in wood.

ARROWS

Arrows vary in size, use and construction. Generally, larger arrowheads are used in game hunting, and smaller, harder heads are used for sport purposes. Fletchings, at one time exclusively feathers, are added to the rear of the arrow shaft to give directional stability to an arrow's flight. They now take many forms, including hair, wood and plastics. Modern arrows are usually made of aluminum tubing, and the fletchings are plastic, resulting in arrows of uniform weight, flight characteristics and performance.

FINE TUNING

While there are excellent modern bows and arrows available through commercial outlets, Carter uses his skills to enhance effectiveness. He said, "A standard longbow might have a draw weight of 60-75 pounds. This is the same as lifting such a weight through a bow's entire draw. This is difficult to do and even harder to hold. Modern bows overcome this limitation."

"Today's compound bows," Carter said, "can be set to reduce the draw (bow) weight once a certain draw length is reached.

Continuing, Carter explained "Breakover." "An archer may have an initial draw weight of 50 pounds, when the string is pulled to 65 percent of its draw length, the draw weight drops to about 17 pounds."

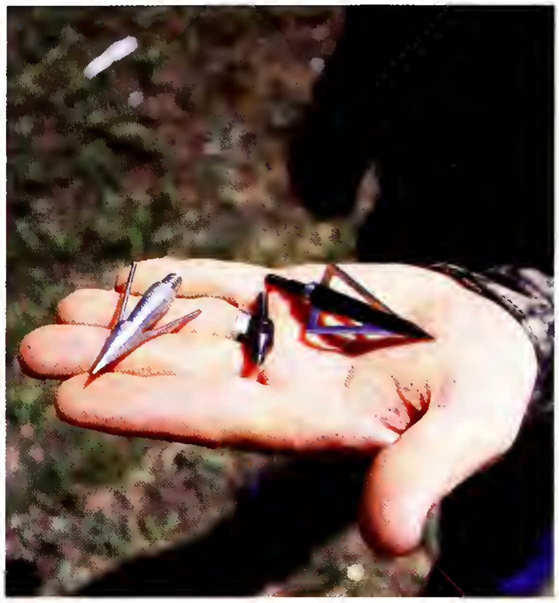
Carter's expertise lies in designing archery equipment to fit an individual and the use to which the equipment will be put. There are various arrowheads such as the broadhead, practice, and even one for shooting fish and another for shooting birds. Carter fits arrowheads to precisely-aligned arrows and assures that arrowhead weight is correct because bow and arrow hunting is not like hunting with a gun.

"Arrows kill by hemorrhage," Carter said, "while bullets kill by shock."

The AAC, in July 1992, released some facts regarding bowhunting. What they had to say confirms Carter's statements. For example, modern compound bows shoot between 200-300 feet per second, while 30-30 rifles shoot 2200 feet per second. Arrows fitted with broadhead tips impact like surgical scalpels, often slicing through game with minimal external damage. This would lead some to believe that game shot with an arrow would take a long time to die and game would be lost. The AAC says, "No."

"Studies that have examined animals shot with an arrow have found that immobilization time is comparable to being shot with a bullet," says the AAC. They report that immobilization time of 27 big game animals shot with bows in the chest cavity averaged 29.7 seconds. This compares to 28 animals shot in the chest cavity with rifles being immobilized in 22.3 seconds.

A favorite game for Louisiana hunters is deer. A rifle has the advantage of range over the bow, yet therein lies the challenge. Bowhunting requires the utmost attention to detail regarding stealth, preparation and hunt conduct. In Part II, we'll meet two individuals who find the challenge worth the effort. ■



These three arrowheads are for fishing (far left), practice and competition (middle) and big game hunting (far right).

Photos by Carle Dunn

Carter uses an electronic device to measure velocities of arrows of different weights.

Hunting deer during breeding season can be productive, but finding a "scrape" doesn't mean killing that trophy buck.

Trakking the Rut

BY DAVID MORELAND

The Wensel brothers, a famous bowhunting duo, frequently make the statement that it's not necessarily how you hunt for big bucks, but where you hunt. The implication is that if you hunt on areas where hunting pressure is high and the buck population young, with few adults, your chances of connecting with a real trophy are slim. The age factor is very important in producing quality deer and clubs that shoot 1 1/2 year old bucks at a high rate won't have many older ones for later seasons.

If you are fortunate enough to hunt on a place that does pass up the young 1 1/2 and 2 year old bucks, you're one step ahead of the game. But just because "ole moss back" is there doesn't make him a sure bet. This is where hunter "know-how" comes into play. Of key importance is knowing when to hunt.

Most hunters are aware that there are certain times when deer are most active. One of these is often referred to as "the rut."

Most hunters think of the rut as the time when bucks are actively chasing does. Actually, the rut also includes the time just before these nuptial courtship races as well as the time immediately after the races have ended and the does have been bred. The time when these chases occur is definitely a period when the hunter should be in the woods. It's a time when that mature buck forgets about the hunter and directs his focus to the females. This is the time to outwit that once-in-a-lifetime trophy.

When a buck's antlers harden and the velvet comes off he is capable of breeding. However, unless a doe is in heat (estrus) she will not "stand" for the buck. A doe comes into heat for a 24-hour period once a month. Consequently, the females determine when the breeding season is for a particular herd. If she is not bred during the first cycle, she will have another estrus cycle one month later. It is best if the does breed during their first estrus cycle. In herds that are over-populated, the breeding season may extend over a period of two to three months which results in late-born fawns. This is not a desirable situation and presents numerous problems for good deer management.

Biologist John Roberson and Dan Dennett did the first major study of the breeding season of Louisiana whitetails between 1958 and 1966. They studied seven deer herds and basically identified three distinct breeding seasons. Table 1 shows the areas studied and the calculated breeding season for each area. Figure 1 shows the location of these three distinct areas.

During the statewide restocking program (1949-1969) there was no consideration for the breeding season of deer being trapped and released in other locations. Consequently, there are isolated pockets within some parishes where the breeding season differs from the remainder of the parish.

While I was supervisor of the Baton Rouge District, we found such an area in East Feliciana Parish. We conducted closely-managed youth hunts on Camp Avondale in the southeast quarter of the parish and reproductive tracts were collected from does harvested on these hunts. Utilizing fetal studies, we calculated the breeding season for this herd. The area had been stocked with deer from Red Dirt Game Management Area (north central Louisiana) in 1955. The peak breeding season calculated for this herd was Nov. 6 - Nov. 26, with the median breeding date being November 12. Breeding begins a full month earlier in this small portion of the parish than throughout the rest of it. These dates closely coincide with the work of Roberson and Dennett and indicates the importance of genetics in determining breeding seasons. Similar results were found for other herds we studied in southeast Louisiana. The new "Area 7" is a result of more recent work in Iberia and St. Mary parishes.

Is it important that hunting season coincide with the rut? On Camp Avondale, we first hunted in late December and met with marginal success, especially with respect to the number of antlered bucks harvested. After determining that the deer breed early, hunting dates were scheduled to coincide with the rut. As a result, overall success remained constant and the buck harvest dramatically increased.

Bucks mark their territory during the rut with rubs and scrapes. Hunters look for these signposts and will frequently set up around them. The problem is that bucks will make rubs and scrapes prior to, during and after the peak breeding period. Hunting these scrapes and rubs long before and after the peak period may result in long hours spent up a tree and not seeing anything. Remember, a buck is ready to breed long before the does are and often gets anxious. About a week prior to peak breeding, the number of scrapes begins to increase and bucks usually start checking them on a regular basis. This is the time to start

When the velvet sheds from a buck's antlers, he is capable of breeding and begins looking for a mate. This is when the rut begins and "ole moss back" lets down his guard.

hunting seriously around these sites.

During the 1992-93 deer season, I utilized the technology of infrared sensors and cameras to monitor scrape activity. Most visits to scrapes were just at dawn or right at "dark-thirty," during times when light is a precious commodity. Some bucks came only at night and only few exposed themselves during open daylight, hoping a doe had left her calling card in the scrape. Scrapes were often visited by does and several bucks would work the same scrape.

At one location, I documented the visits of a nice 8-point with a 16-inch inside spread over a three week period. Peak breeding on this particular area usually occurs during the first two weeks of December. A trak camera was set up in his territory on December 1. Table 3 shows the activity that took place in the area.

Photo by David Moreland

Knowing when a scrape is visited by deer can save hours or days sitting in a tree stand. Above, a buck stops at a scrape at 5:52 p.m. on Dec. 18, 1992. About an hour later, the same scrape was visited by a doe and a yearling.

TABLE 1
Breeding Dates for Selected Louisiana Deer Herds

Location	Breeding Dates Extremes	Peak Breeding Activity
Avery Island	Sept. 26 - Dec. 9	Oct. 1 - Oct. 31
West Bay GMA	Sept. 27 - Dec. 9	Oct. 16 - Oct. 31
Evangeline GMA	Oct. 18 - Oct. 31	Oct. 18 - Oct. 31
Red Dirt GMA	Sept. 22 - Jan. 25	Nov. 1 - Nov. 15
Jackson-Bienville GMA	Dec. 2 - Jan. 26	Dec. 1 - Dec. 15
Delta Refuge	Nov. 15 - Jan. 18	Dec. 14 - Dec. 29
Tensas Parish	Dec. 10 - Feb. 26	Jan. 1 - Jan. 15

TABLE 2
Deer Harvest - Camp Avondale - East Feliciana Parish

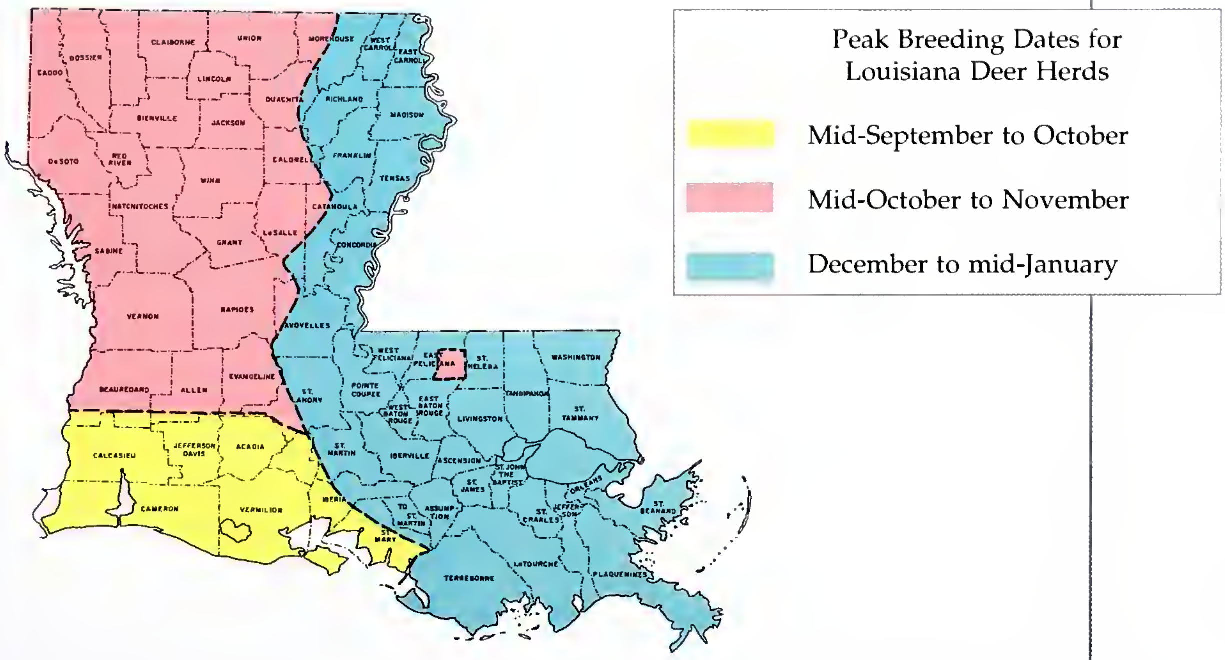
Year	Total Deer Killed	# Antlered Bucks Harvested	Season Schedule
1983	41	2	late December
1984	25	1	late December
1985	36	4	late December
1986	20	3	late December
1987	20	4	late December
1988	11	1	late December
1989	5	1	late December
1989	24	7	early November
1990	46	11	early November
1991	39	14	early November
1992	53	12	early November

TABLE 3
Scrape Activity/Dec. 1-19, 1992

Date	Time	Activity
December 1	10:00 a.m.	*Camera set up at some rub trees*
December 3	8:10 a.m.	*Doe photographed at rubs*
December 4	7:37 p.m.	*8-point photographed at rubs*
December 8	9:00 a.m.	*Camera moved to a fresh scrape near rubs*
December 9	4:55 p.m.	*8-point photographed at scrape*
December 10	4:47 a.m.	*Doe photographed at scrape*
December 10	10:17 p.m.	*Doe photographed at scrape*
December 13	5:22 p.m	*8-point photographed at scrape*
December 15	4:58 p.m.	*Spike photographed at scrape*
December 16	7:00 p.m.	*I set up a climbing stand near scrape and rattled up the 8-point and video-recorded him. Cam-Trak Camera picked up and moved to a new location 300 yards away from this scrape.*
December 19	9:30 a.m.	*8-point seen and videotaped chasing two does near this new location.*

As you can see, the buck described above in Table 3 could have been harvested. His general pattern was to visit the scrape on one day and then not come back for three or four days, an indication that he had found a doe approaching estrus. Knowing when the breeding season was for this herd made it a little easier to trak him down. Perhaps the same knowledge can help you in your quest for that wall hanger. ■

FIGURE 1



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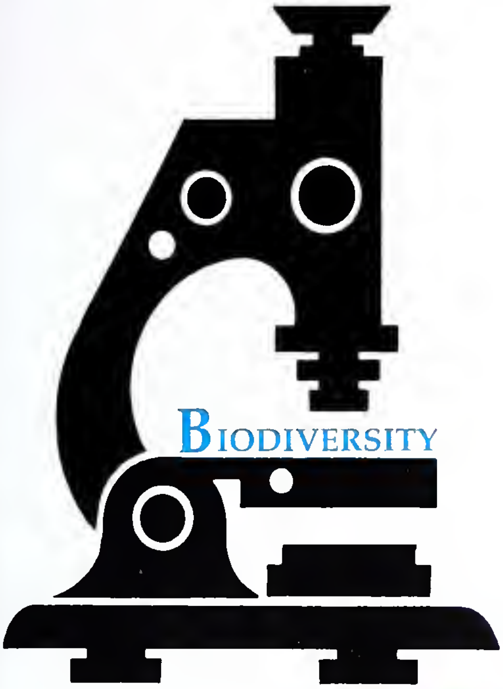
Education Corner

A CLOSER LOOK



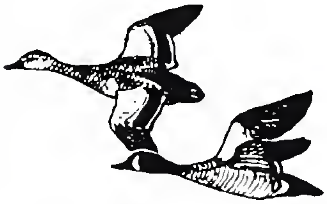
BIODIVERSITY

By Lyle Soniat, Ph.D.
Louisiana Sea Grant College Program
Linda Wygoda
Sam Houston High School, Calcasieu Parish

Louisiana is well known for the variety of plant and animal life thriving in its diverse habitats. The piney woods, bottomland hardwoods, one of the largest freshwater swamps in America, and miles of coastal wetlands provide homes for a diversity of plant and animal species. **Biodiversity**, a shorthand way of saying biological diversity, refers to this broad variety of living organisms and their habitats. Biodiversity in nature's way of "not putting all the eggs in one basket," because a variety of living species ensures the strength of the entire ecosystem by providing for flexibility to meet changes through adaptations.

There are three types of biodiversity: **species diversity**, the variety of species in a habitat; **genetic diversity**, the variation of genes within a species; and **ecosystem diversity**, differences among different organisms in different physical settings.

The enormous diversity of bird life supported by the marsh is an excellent example of species biodiversity. This variety of species is possible because of the wide variety of niches that the marsh habitat provides. The food web of the marsh functions as a finely tuned system and the loss of any one species profoundly affects both predators and prey. The extinction of a species results in a loss of species diversity. While some extinctions are the result of a specific failure to adapt to changing habitat conditions and are not caused by human interference, the overall extinction rate is increasing primarily because of human activities. The United Nations World Resources Institute estimates that at the current rate of extinction, 20 to 50 percent of known species will be extinct by the year 2000.

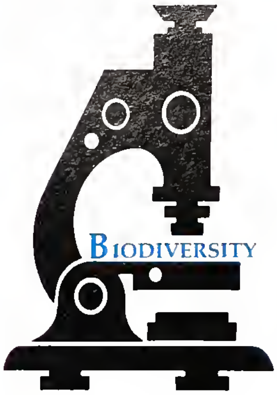


The ability of a species to adapt to changing conditions in the marsh is provided by genetic diversity. All green-winged teal, for example, have food-sifting structures called lamellae (or "combs") in their bills, but slight genetic variations can cause these combs to differ widely in size. Such variation would be important to the survival of the species if the available food choices were to change. As wildlife habitat is destroyed or changed, some populations may be isolated and surrounded by unsuitable habitat or human development. These isolated populations can be less able to adapt and survive because of their limited gene pool (the sum of all the genetic combinations of a population). An isolated population of teal having only large combs, for example, would be unable to adapt to a new food supply with very small seeds.

Predators remove sick, weak, and injured animals from the prey species, thereby leaving only the strong and healthy to survive and reproduce.

The loss of genetic diversity is well known for some food crops. According to the U.S.D.A., of more than 7,000 apple varieties in use between 1804 and 1904 in the U.S., 86 percent have been lost; of almost 3,000 pear varieties, 88 percent are no longer available. Genetic diversity is important in breeding both crops and livestock. The loss of genetic diversity in food crops could have serious consequences, especially when combined with changing climatic conditions.

Predators are important as part of the diversity of the ecosystem, removing sick, weak, and injured animals from the prey species, thereby leaving only the strong and healthy to survive and reproduce. An alligator strengthens the nutria population in the long run by removing sick, slow, or injured nutrias. When alligators alter their own habitats, they make the environment suitable to the requirements of other animals. For example, the alligator flattens grasses in the marsh, thus providing wildlife trails and nesting areas for



smaller animals including waterfowl. Alligators are also able to dig into the soft mud, thus creating deep water areas which are especially important during the summer months. Turtles sometimes lay their eggs in the same nest as alligators and thereby get the unknowing protection of the female 'gators.

An animal such as the alligator that modifies and provides habitat for other organisms is known as a keystone species, because its presence is considered critical to the overall survival of many other species. Predators provide an important indicator of the overall health of the habitat. They are a necessary link in the food web, and their absence lessens the integrity of the environment in both an ecological and aesthetic sense.

While all wetlands contain aquatic plants, small mammals, waterfowl, and predators, each wetland habitat has its own unique animals and plants. This type of biodiversity, ecosystem diversity, is also important. Because many waterfowl are migratory species, they use different areas to nest or overwinter, and as stopovers during migration. Their health and survival are linked to the protection of a variety of wetland areas, such as the coastal marshes of Louisiana, the prairie potholes or small ponds of the midwest, and the wetland areas of Canada. In the U.S., we have lost a substantial portion of our coastal wetlands in just the past 30 years. This loss is detrimental to not only waterfowl but also to fish and shellfish. Ninety percent of the world's marine fish catch reproduce in areas like these.

Species depend on each other for survival, and destroying one can lead to further extinctions or changes.

The global collection of genes, species, and habitats provides for human needs both now and in the future. We depend on other species to clean water, break down pollutants, and cycle materials such as carbon dioxide, oxygen, and nitrogen. Species depend on each other for survival, and destroying one can lead to further extinctions or changes. While the loss of one species can be an unavoidable occurrence, it often indicates a larger problem such as pollution, changing climate, over-exploitation, and habitat destruction. Each species acts as a weld holding the wetland habitat together and linking it to other habitats. The loss of any one of these weakens the overall system and places more stress on those remaining species, including humans.

One-fourth of all prescription drugs in the U.S. come from natural plant sources and the potential use of 99 percent of the world's plant and animal species is unknown. Are people willing to lose the potential for cures or medicines which may be available in the diversity of species on the earth? Not many of us would feel comfortable on an airplane with welds missing from the wing. Yet we hardly notice the loss of an estimated 100 species that become extinct each day throughout the world. New opportunities for food and medicine are lost as a result. The preservation of genetic diversity, species diversity, and habitat diversity in the face of increasing human population and its demand for resources and energy will remain one of the biggest conservation challenges of the next century.

ACTIVITY

The difference between genetic diversity and species diversity is often confused. Let's consider some examples to help clarify those differences. Remember, genetic diversity refers to the variety of adaptations within similar types of plants or animals. For example, on your next visit to the grocery store, look at the different types of apples. Describe the ways that you think they are different in size, color, and shape. Why do you think these varieties were selected? Why is it advantageous to have different varieties of the same apple? What other examples of differences in fruits or vegetables can you describe? What do you think are some advantages of each of the different varieties? What might happen if one of the differences turned out to be a disadvantage?

Often the relationship between diverse species is not fully understood. Resource managers once tried to remove the alligators from a river because they were trying to increase the numbers of fish in the river for the local natives to eat. They reasoned that the alligators were eating many of the fish. In fact, the removal of the alligators contributed to the decline of the fish population. Why do you think that this happened? What did the alligators contribute to the ecosystem that actually helped the fish population? This is an example of how species diversity is critical for the balance of certain ecosystems. Can you think of any species near your home that are dependent upon other species for their survival?

Generally, the more diverse species there are in a given habitat, the more opportunities exist for other species to survive. Why do you think that this is so? Can you name a habitat that supports a large number of diverse species? Once there were great areas of prairie lands in Louisiana. What types of animals or plants do you think might have lived on Louisiana prairies? What do you think happened to the prairie? Where did the plants and animals that lived there go? What types of habitat in Louisiana are the richest in species? What might change those habitats, thereby limiting the number of species that live there? Does a diversity of habitat increase or decrease the number of species occurring in Louisiana? Why?

LAW LINES

Behind the Badge

BY CAPT. KEITH LACAZE

Anyone familiar with wildlife law enforcement will readily admit it is one of the more unusual types of police work. The fact that most of the work takes place in the woods and on the water makes it vastly different from city policing and highway patrol duties.

Although the job does diverge from conventional law enforcement in some ways, it also has numerous similarities. Many of the methods and much of the training are the same. A number of techniques have applications and are as effective in wildlife protection as they are in drug enforcement or any other phase of law and order.

One of the most notable techniques is development and use of the informant. Television cop shows have created an unfavorable perception of the informant by portraying him as a seedy character, dragged into a dark alley by the police and threatened with arrest or far worse unless he divulges the name of the villain. But by definition, and in the real world, an informant is anyone who discloses information. For our purposes it is anyone who discloses information which leads to the arrest of a poacher. Since wildlife agents are scattered sparsely over vast patrol districts, they must rely heavily on information provided by concerned citizens. This allows the agent to concentrate on specific violations and dramatically increases effectiveness.

The problem with violation reporting by the public is most often simply the failure to do so. Studies dating back to the early 1970s revealed that as few as 2.5 percent of wildlife violations witnessed by the public are ever reported. One of the most successful solutions has been the creation of crime stoppers programs for wildlife.

Every state and all Canadian provinces now have anti-poaching "hotlines." They have many names and acronyms, such as Wildlife Alert and T.I.P. for Turn In Poachers. But all have essentially the same objective of providing cash rewards for information which leads to the arrests of wildlife violators.

Louisiana's program is called Operation Game Thief and has been in existence since 1984. O.G.T. is a non-profit corporation, funded and managed by volunteer sportsmen from throughout the state. They meet quarterly to review wildlife violation cases resulting from information provided by program participants and to determine and dispense reward amounts.

The O.G.T. process is fairly simple. If someone witnesses or has information concerning a violation they should call Operation Game Thief's toll-free 24-hour phone line. The number is 1-800-442-2511. The information is received by a Wildlife and Fisheries operator and immediately relayed to a wildlife agent who will investigate. A code number is given and the caller's name and phone number are placed on file. There are provisions for these callers who wish to remain anonymous.

If the information results in an arrest, the caller is eligible for a cash reward. The amount, determined by the O.G.T. members, is given to a wildlife agent coordinator who makes arrangements with the caller for transfer or delivery of the money. Rewards are based on a scale of a $100 minimum for small game, $300 minimum for big game or illegal selling of game or fish and a maximum of $1,000 for large-scale cases. The scale is used as a guideline. O.G.T. frequently exceeds the minimum based on the agent coordinator's recommendation, the value of the information provided and the effort put forth by the reward recipient.

Since the program began, more than $86,000 in rewards has been paid. Information provided by O.G.T. informants has resulted in the apprehension of more than 700 violators, who were convicted on a multitude of state and federal charges.

Success can be measured in arrests and rewards but other important benefits are more difficult to assess. Is the existence of a reward program a significant deterrent to wildlife criminals? Will we know the actual benefit of increased public awareness of the damage inflicted by outdoor outlaws? Have the cash reward incentives accomplished the original goal of increasing the percentage of reported violations?

These questions may not be answerable beyond speculation. However, those in the law enforcement field are confident that the offer of cash is one of the most effective methods of gaining information. The sportsmen who support O.G.T. in Louisiana, and those who support similar programs in other states, either through volunteer work or financial assistance, can rest assured that they are assisting wildlife officers in the best way possible.

The effectiveness of these anti-poaching groups has now led to the creation of a nationwide system. The National Anti-Poaching Foundation is based in Colorado Springs, Colorado and augments state "hotlines." N.A.P.F. has a national access toll-free number (1-800-800-WARDEN). It is designed to immediately transfer calls from anywhere in the U.S. to the state which has jurisdiction over a suspected violation. This system has greatly enhanced the ability to track and apprehend interstate violators.

O.G.T. and N.A.P.F. are just two examples of the many fine organizations supported by sportsmen who are willing to make a serious contribution to wildlife conservation. Find out more about how you can become involved in the battle against outdoor outlaws by calling Operation Game Thief. If we are to enjoy wildlife tomorrow, we must stop poaching today.

LDWF Employee Recognized for Forestry Work

The Louisiana Chapter of the Society of American Foresters recently presented their 1992 Young Forester Leadership Award to Kenny Ribbeck, supervisor of the Department of Wildlife and Fisheries' Forestry Section.

Ribbeck, who began working at LDWF in 1984, is responsible for management of 275,000 acres of forested land. His work toward conservation of these forests was cited a factor in receiving this honor.

Bob Love, LDWF land acquisition and development programs manager, said Ribbeck has been extremely effective in his role of ensuring the health of Louisiana's forests.

"More progress has been made in the last three years under Kenny's direction than at any other time in the Forestry Section's history," Love said. "Most of it is Kenny's doing."

Ribbeck also has served as coordinator for the Department's involvment in the Forest Stewardship Program and has served on the Louisiana Black Bear Conservation Committee.

Louisiana Conservationist Calendar Available

The 1993 calendar issue of the *Lousiana Conservationist* magazine is available for only $5 per copy.

The calendar, which is a great gift features, 13 breath-taking examples of the scenery Louisiana has to offer.

The full-color pictures highlight coastal scenes, rugged hills, beautiful waterfalls and fog-shrouded streams.

To order copies write *Louisiana Conservationist*, P.O. Box 98000, Baton Rouge, LA 70898.

Hunter Safety Courses Available

Hunter safety courses have been scheduled throughout the state for the upcoming season. The courses are required by law for anyone born on or after September 1,1969.

For information on scheduled courses call 504/765-2932.

OGT Drawing Raises Money for Rewards

At the spring meeting of the Louisiana Operation Game Thief Citizens Advisory Committee, a drawing was held for a Remington Model 700 Rifle and Leupold Scope.

Ticket sales for the drawing raised about $4,000 to help pay more rewards for information leading to arrests of violators of wildlife laws.

The rifle and scope were won by Suzanne LaCour of Baton Rouge. The prizes were donated by Jimmie Downs of Baton Rouge Coca Cola and Alex Chauffe III of A. and L. Enterprises Inc. in Grosse Tete.

Anyone knowing of or suspecting wildlife violations, call the 24-hour O.G.T. Hotline at 1-800-442-2511.

Photo by Keith Lacaze

Suzanne LaCour of Baton Rouge is presented a rifle and scope by O.G.T. President Dr. David A. Spring.

Mottled Duck Chosen for 1994-95 Stamp

Louisiana artists are invited to compete for the recognition of having their work chosen as the image for the State Waterfowl Conservation Stamp, or Duck Stamp.

Entries must be sent to Dave Morrison, Louisiana Waterfowl Conservation Stamp Program, Louisiana Department of Wildlife and Fisheries, 2000 Quail Drive, Baton Rouge LA 70808. The competition is open to artists 18 years of age and older and living in or native to Louisiana. Employees of LDWF and members of their immediate families are ineligible.

Entries must be received by Oct. 27, 1993. Submissions will not be considered without a signed, notarized Artist Agreement and a $50 entrance fee. The agreement is available by writing to the above address.

Judging will be on Nov. 3, 1993 at 9:30 a.m. at the LDWF headquarters in Baton Rouge.

Also, a limited number of 1989 First of State Governor's Edition Louisiana Duck Stamp Prints are available for purchase. This is sure to be a collector's item, as it was the first year of this state's Duck Stamp Program.

Each print costs $979 and includes the print, a hand-painted rendering of a Blue-winged Teal painted directly on the print, a medallion and four stamps.

All money from this sale will help fund Louisiana's wetlands programs.

Write Dave Morrison, Louisiana Department of Wildlife and Fisheries, P.O. Box 98000, Baton Rouge, LA 70898-9000, or call 504/765-2347.

Correction

On page 13 of the May/June 1993 issue of the *Louisiana Conservationist*, a forester was inadvertently misidentified. The forester in the picture should have been identified as Ed Trahan. The *Louisiana Conservationist* regrets the error.

Wallop-Breaux Funds at Work

The U.S. Office of Budget and Management is attempting to raid the $300 million fund known as the Wallop-Breaux Trust Fund, which since 1984 has provided funding for fisheries habitat enhancement, boater safety programs and boater access.

The first-ever National Recreational Fisheries Summit was held June 6-8 on Capitol Hill to address the threat to the important fund. The conference was sponsored by the Sport Fishing Institute, a non-profit fish conservation organization.

The Wallop-Breaux Trust Fund, cosponsored by U.S. Senator John Breaux (D-La.) in 1984, has been the heart of sport fishing conservation in this nation. Through an excise tax on aquatic recreation items, sportsmen have supported the fund for a decade.

Louisiana Department of Wildlife and Fisheries Assistant Secretary Corky Perret presented Senator Breaux with documentation of the Wallop-Breaux Trust Fund at work in Louisiana. The hardbound book included color photographs of 25 completed boating access projects and fishing facilities.

Photo courtesy of Sport Fishing Institute

Presentation of the Wallop-Breaux scrapbook. (Left to right) LDWF Inland Fisheries Assistant Administrator Don Lee, Sport Fishing Institute Chairwoman Helen Sevier, U.S. Sen. John Breaux, LDWF Marine Fisheries Division Administrator John Roussel, LDWF Assistant Secretary Corky Perret, LDWF Inland Fisheries Administrator Bennie Fontenot and Sport Fishing Institute President Gil Radonski.

LDWF Leasing Dove Fields

The Louisiana Department of Wildlife and Fisheries is exploring the possibility of leasing private grain fields for public dove hunting.

Dove hunting is a popular recreational sport in Louisiana, but it is becoming increasingly difficult to find hunting areas due to declining access in agricultural areas. This situation is a particular problem near metropolitan areas. Areas surrounding Alexandria, Baton Rouge, Lafayette, Lake Charles, Monroe, New Orleans, and Shreveport are being targeted in particular.

Dove fields must be planted in corn, millet, milo, or other suitable grains, or be available for future planting. Areas greater than 20 acres are preferred, but smaller fields will be considered.

Landowners would be compensated monetarily and released from liability in the event of an accident. One of the benefits to landowners will be freeing them from having to collect fees at his property entrance for private hunts,

Anyone interested in leasing a dove field to LDWF should contact Mike Olinde at 504/765-2352.

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Millard, Gerald G	Brusly
Oncale, Albert L	Garyville
Pendley, Patrick W	Plaquemine
Richard, Drake J	Labadieville
Rinehart, Bradley W	Dubberly
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Roy, Michael W	Westwego
Watson, Ryan J	Baker
Allbritton, Justin E	West Monroe
Armfield, Woodrow F	West Monroe
Bankston, Louis K	Dry Prong
Bollinger, Donald T	Lockport
Chiasson, Blake J	Des Allemands
Cottle, III, James D	Gibsland
Cozic, Paul E	Kenner
Firmin, III, Herbert J	Baton Rouge
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Gantt, Daniel T	Rosedale
Landry, David J	Jeanerette
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Lapeyrouse, Chris P	Bourg
McGraw, Jason L	Zachary
Mills, Kirk M	Zachary
Partridge, Scott S	Metairie
Rachal, Michael P	Moreauville
Terracina, Gordon F	Sunset
Thibodeaux, Bret A	Rayne
Thibodeaux, Jason W	Rayne
Abadie, Steven J	Destrehan
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Bihm, Ryan D	Gonzales
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Bayou Kitchen

by Wayne Mille

Photo courtesy of the La. Seafood Promotion and Marketing Board

Photo by Ken Glaser

Grilled Shrimp with Asparagus and Garlic Mayonnaise Dip

1	large egg
4	medium garlic cloves
1	tablespoon fresh lemon juice
1	hard-cooked egg yoke
1/2	teaspoon Dijon mustard
1/4	teaspoon ground white pepper
1/4	teaspoon salt
2	cups olive oil
2	pounds fresh asparagus
2 1/2	pounds uncooked large shrimp, peeled and deveined
	olive oil
	chives

Mayonnaise: Blend first 7 ingredients in processor. *Gradually* add 2 cups olive oil through tube and blend until smooth and thick. Transfer to bowl.

Blanch asparagus in boiling salted water, about 3 minutes, or until tender. Do not overcook. Plunge into ice water to stop cooking and drain. Set aside.

Prepare barbecue (high heat). Thread shrimp on skewers. Brush with olive oil. Cook until shrimp turn pink, about 2 minutes per side. When ready, place mayonnaise in center of platter and sprinkle with chives. Toss asparagus with 2 tablespoons lemon juice and a pinch of dill. Remove shrimp from skewers. Arrange shrimp and asparagus around mayonnaise and serve immediately.

Fried Louisiana Shrimp

1	pound fresh La. shrimp
1	small can evaporated milk
2	eggs
1	tablespoon baking powder
2	tablespoon vinegar
1	cup fish fry
1	tablespoon lemon juice
	salt
	pepper

Remove head and shell of shrimp, leaving fantail. Split shrimp down back and remove vein. Mix eggs, milk, baking powder, juice, and vinegar. Marinate shrimp in mixture for at least an hour. Remove and add spices. Dredge seasoned shrimp in fish fry and fry in deep skillet in hot oil. Serve hot.

Gulf Coast Shrimp with Rice

2	pounds shrimp, shelled
3	medium onions, chopped
2	medium bell peppers, chopped
1/4	pounds butter
2	cups long grain rice
4 1/2	cups shrimp or chicken stock
1	small jar pimentos
1	clove garlic, minced
	dash of red pepper
	salt and black pepper to taste

Melt butter in heavy pot. Add onions, bell pepper, garlic and pimentos. Cook over medium heat for 8 to 10 minutes or until onions begin to turn soft. Add shrimp and cook additional 3 minutes or until they begin to turn pink. Pour hot shrimp stock over mixture and add red pepper, salt and black pepper to liquid. Bring to a boil and then add rice. Stir and cover. Lower heat and simmer for about 20 minutes. Add more stock if needed.